

Criminal Justice Involvement, Self-Employment, and Barriers in Recent Public Policy

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Abstract

This study provides the first empirical evidence on the extent of self-employment within the U.S. justice-involved population. Using linked tax return and Criminal Justice Administrative Records System data, we find that 28 percent of individuals with criminal records are self-employed. Justice-involved individuals are 22 percent more likely to rely solely on self-employment. The Paycheck Protection Program, passed to support small business during the COVID-19 pandemic, initially disqualified those with a broad range of criminal histories. We find that close to 3 percent of recent sole proprietors had observable PPP disqualifying events based on initial eligibility criteria, with a disparate impact on Black and Hispanic business owners. Published 2022. This article is a U.S. Government work and is in the public domain in the USA.

INTRODUCTION

Population contact with the U.S. criminal justice system has grown substantially in recent decades. Incarceration rates increased from 118 to 519 persons incarcerated per 100,000 between 1960 and 2010.¹ Recent estimates suggest that 8 percent of all adult men have a felony conviction and 3 percent have been to prison, which is most pronounced within minority communities (Shannon et al., 2017). Individuals with criminal records face significant barriers to employment (e.g., Holzer et al., 2003, 2007; Mueller-Smith & Schnepel, 2021; Pager, 2003).

In 2019, the Department of Labor allocated \$87.5 million towards grants to improve the employment opportunities of people leaving the corrections system. One approach focuses on entrepreneurship, represented by the work of a growing number of nonprofit organizations (e.g., Defy, Project ReMADE, LIFE Reentry Program for Women Prisoners, and the Prison Entrepreneurship Program). If justice-involved individuals face labor market discrimination, they may be better off starting their own businesses and employing themselves. However, quantitative evidence on the scope and effectiveness of entrepreneurship and self-employment in this population is essentially non-existent.²

¹ Authors' calculations using state and federal prison counts (<https://www.sentencingproject.org/criminal-justice-facts>) and 1960 and 2010 Decennial Census information.

² A contemporaneous effort in Hwang and Phillips (2020) and Bushway et al. (2021) are the two clear exceptions. Hwang and Phillips document higher rates of self-employment among formerly incarcerated

In this paper, we document the first empirical evidence on self-employment rates among justice-involved individuals, the corresponding industrial composition, and comparisons to general population benchmarks. We perform the first linkage between criminal histories from the Criminal Justice Administrative Records System (CJARS) (Finlay & Mueller-Smith, 2020) and tax filings from the Internal Revenue Service (IRS). The analysis focuses on five states (Arizona, Michigan, North Carolina, Texas, and Wisconsin) that together represent approximately 20 percent of the U.S. population.

We find that 28 percent of individuals with criminal records report business income to the IRS in the 2014 through 2018 tax years. Filing rates are especially high for Black and Hispanic women with criminal records, at 42 percent and 32 percent, respectively. Using covariate-adjusted regression models, we find that people with criminal records are two percentage points (22 percent) more likely to rely solely on self-employment than the general population.³ The businesses owned by self-employed people with criminal records generate total revenues that are 8.5 percent larger than those of the businesses owned by self-employed people without criminal records. Individuals with criminal records are disproportionately self-employed in construction, “other services” (e.g., automotive repair, hair salons), and waste management than the general population.

These findings highlight the prevalence of self-employment among the justice-involved population, with important implications for research and policy. We now know that the criminal justice population is disproportionately engaged in self-employment as a means of achieving self-sufficiency, a form of economic activity consistent with existing research on criminal records and labor market discrimination. Further attention is merited in the literature since self-employment is unmeasured in most employment datasets (e.g., unemployment insurance wage records or IRS W-2 information returns), potentially leading to underestimates of work and income among the justice-involved population.

Whether federal support for small businesses should extend to owners with criminal histories has received renewed focus because of the establishment of the Paycheck Protection Program (PPP) in April 2020 in response to the COVID-19 pandemic. This program, administered by the Small Business Administration (SBA), provided forgivable loans to small businesses as part of the Coronavirus Aid, Relief, and Economic Security (CARES) Act.⁴ While the SBA has a history of collecting personal information and criminal histories via Form 912, the initial rollout of the PPP included strict, non-discretionary eligibility cutoffs based on prior justice contact for the first time in recent history. According to the initial rules, any business with an owner of 20 percent or more equity who had a broad range of criminal backgrounds was ineligible for program benefits.⁵ The SBA is authorized under 15 USC §636 to verify applicant criminal backgrounds in order to reduce fraud, waste, and

respondents in the National Longitudinal Survey of Youth. Bushway et al. provide valuable information on the number of small business owners excluded from the Paycheck Protection Program due to criminal record disqualifications at a national level and how many business owners were impacted by changes to the restrictions; they independently validate our previous estimates using a new, alternative approach.

³ Reliance on self-employment in a given year is defined as filing a Schedule C and having IRS W-2 information returns totaling less than \$1,000.

⁴ Public Law 116-136 Sections 1102 and 1106, amended in Public Law 116-139 on April 24, 2020, and Public Law 116-142 on June 5, 2020.

⁵ The disqualifying criteria included being presently incarcerated, on probation, or on parole; subject to an indictment, criminal information, arraignment, or other means by which formal criminal charges are brought in any jurisdiction; or within the last five years, for any felony, has been convicted, pleaded guilty, pleaded *nolo contendere*, been placed on pretrial diversion, or been placed on any form of parole or probation (including probation before judgment).

abuse in its programs.⁶ At the outset, it was unclear how many small businesses might be ineligible to apply for assistance as a result of these criminal history restrictions, and, starting in June 2020, the SBA began narrowing the scope of PPP criminal disqualifications.^{7,8}

We leverage our linked data to measure the prevalence of the originally disqualifying criminal history characteristics among those with recent evidence of self-employment. This exercise sheds light on the initial PPP barriers and provides important empirical evidence for administrators of future small business loan programs, who may consider restricting access based on criminal histories. While most of the disqualifying criteria are no longer in place, the original policy likely had a lasting impact since business survival at the start of the pandemic has been linked to PPP support (Bartik, Bertrand, Cullen, Glaeser, Luca, & Stanton, 2020; Bartik, Bertrand, Cullen, Glaeser, Luca, Stanton, & Sunderam, 2020). We find that a small but non-trivial share of small business owners have disqualifying criminal histories based on the original rules. In Michigan and Texas, where we can observe full criminal histories most accurately, we find that 5 percent and 3 percent of non-farm sole proprietors (Schedule C filers) were ineligible due to the criminal disqualifications. We observe significantly higher rates of ineligibility among Black and Hispanic owners for men and women (127 percent to 409 percent higher compared to their White counterparts), indicating a disparate racial impact of the original SBA criminal history rules.

BACKGROUND

Barriers to Employment for Criminal Offenders

Income stability has long been recognized as an important mechanism for reducing recidivism (Uggen et al., 2005). However, individuals with criminal records often face labor market discrimination, making this goal difficult to obtain (Bushway et al., 2007). Some discrimination is institutionalized in the form of state laws that impose occupational restrictions for people with certain criminal histories.⁹ However, even among legally accessible jobs, there is an aversion to hiring individuals with criminal records. Holzer et al. (2003) report that over 60 percent of employers in Los Angeles were unwilling to hire someone with a criminal record. This is reflected in a prisoner reentry study that surveyed 740 recently released individuals, of whom 75 percent reported actively searching for work, but only 45 percent were currently employed, and 70 percent felt as though their criminal record had affected their job search (Visher et al., 2011).

⁶ Although concerns have been raised about the role of fintech firms in promoting fraud in PPP assistance (Griffin et al., 2021), there is no evidence to suggest that those with broadly defined criminal histories have higher or lower likelihoods of engaging in this type of white-collar criminal activity when applying through a traditional financial institution.

⁷ An earlier draft of this paper, Finlay et al. (2020), has been acknowledged as contributing to the SBA's decision to narrow the disqualification criteria. See *Defy Ventures, Inc. v. U.S. Small Business Administration* (2020), Arnold Ventures (2021), and Bushway et al. (2021).

⁸ These restrictions were limited to any felony conviction within the past year or a felony conviction related to fraud, bribery, embezzlement, or a false statement on a loan or federal assistance application within the past five years, individuals starting probation/parole within the last year or individuals starting probation/parole for the same offenses previously listed within the past five years, and individuals presently charged with a criminal felony offense in June 2020 (Small Business Administration, 2020). The restriction for non-fraud felonies within the last year was later removed under the Biden administration for those not currently incarcerated (The White House, 2021).

⁹ See the National Inventory of Collateral Consequences of Conviction: <https://niccc.csgjusticecenter.org> (accessed May 10, 2022).

Pager's (2003) influential audit study documents the presence of such discrimination. Individuals who conveyed that they had a criminal record, most often through a question on an application explicitly asking for this information, were 50 percent less likely to make it past the initial screening.¹⁰ Discrimination based on criminal records is especially pronounced for young black men (Holzer et al., 2003; Pager, 2003; Pager et al., 2009;) and, while present in tighter labor markets, only gets worse in softer labor markets (Pager, 2003; Sabol, 2007).¹¹

Ultimately, employers' preferences regarding criminal records have real long-term impacts on the employment and wages of people with criminal records. Mueller-Smith and Schnepel (2021) show that individuals who avoid having their first felony conviction on their record through changes in diversion are more likely to be employed in both the short and long run and to have higher wages and longer spells of continuous employment than those who narrowly received their first felony conviction record. Thus, individuals facing these barriers to employment are left with either self-employment, informal employment, illegal employment, or unemployment.

Evidence on Self-Employment and Entrepreneurship

Research has shown that self-employed individuals earn less than their employer-based counterparts (Hamilton, 2000). Lower initial and long-run earnings could reflect several things: non-pecuniary benefits, overestimation of payoffs, or a lack of outside options. Heilman and Chen (2003) argue that women and minorities choose to be self-employed at higher rates than men and Whites because of employer discrimination based on family duties, gender, and race. These arguments can be extended to other marginalized groups, particularly those with criminal records. Hwang and Phillips (2020) document higher rates of self-employment among formerly incarcerated respondents in the National Longitudinal Survey of Youth (NLSY), particularly in states without Ban-the-Box policies. We contribute to this literature using novel data linkages between administrative tax and criminal justice data, allowing us to measure self-employment across a broad range of criminal justice exposure at the population level without the limitations common in surveys.

Historically, it has been difficult to quantify the extent to which those with criminal justice involvement improve their economic standing through self-employment due to data constraints. Labor market outcomes are commonly studied using unemployment insurance (UI) wage records or IRS W-2 information returns. However, self-employed individuals are not captured in these administrative records, leaving questions related to self-employment intractable.

There are no large national household surveys in the U.S. that ask respondents about both criminal histories and specific sources of income. Some targeted surveys about the incarcerated population do collect information about income, but sources of income are not differentiated sufficiently to study self-employment. More generally, a drawback of household surveys in this context is the potential for social desirability bias to lead to underestimates of criminal justice involvement. Justice-involved individuals are also likely to be disproportionately underrepresented in

¹⁰ The initial study was in Milwaukee and the findings were replicated in New York City in Pager et al. (2009).

¹¹ People released from prison into worse labor market conditions are more likely to recidivate, which suggests that legal employment opportunities are an important way to reduce recidivism and that discrimination based on criminal records could be worse in looser labor markets (Agan & Makowsky, 2018; Schnepel, 2018; Yang, 2017).

surveys because of low residential stability (Roman & Travis, 2004), low educational attainment (Harlow, 2003), and membership in minority groups (Carson & Anderson, 2016)—characteristics all associated with poor sample coverage.

Measuring the self-employment of justice-involved individuals contributes both to our understanding of how people with criminal records can achieve economic self-sufficiency and the impacts of policies or restrictions related to small businesses. For example, Blanchflower et al. (2003) and Fairlie (1999) document discrimination against minorities in small business lending, which create additional barriers to self-employment for these groups. More recently, the Payroll Protection Program (discussed in detail in Section 5) initially enforced explicit loan disqualifications based on criminal histories.

USING NOVEL DATA LINKAGES TO MEASURE SELF-EMPLOYMENT IN THE JUSTICE-INVOLVED POPULATION

We use novel microdata available through the Census Bureau's Data Linkage Infrastructure to measure individual criminal and employment histories. We use CJARS to construct criminal histories. We identify non-farm sole proprietors from Internal Revenue Service Form 1040 individual tax returns. These data are linked at the person level using Census Bureau-assigned Protected Identification Keys (PIKs).¹²

Observable Criminal Histories

Our analysis focuses on five states in CJARS where both criminal court and correctional records are present: Arizona, Michigan, North Carolina, Texas, and Wisconsin. Together, these states represent approximately 20 percent of the U.S. population. Depending on the jurisdiction, the records extend back as early as the 1970s and identify dated incidences of charges, convictions, and spells of correctional supervision (i.e., probation, incarceration, and parole). An individual is defined as having a criminal history if they are observed with one or more misdemeanor convictions, felony convictions, or correctional events in the state where they are observed filing taxes.

There is some variation in procedural coverage across the five states. CJARS data from all five states cover misdemeanor and felony convictions under state statute and records of prison sentences. CJARS does not include community corrections data from all states. And, in addition to offenses associated with state statutes, data from Michigan cover misdemeanor records associated with violations of local ordinances.^{13,14}

Tax-Based Measures of Employment

We measure self-employment based on whether a person filed a Form 1040 individual tax form with a Schedule C to the IRS in the 2014 through 2018 tax years. Self-employed, non-farm sole proprietors and independent contractors are required to file a Schedule C and self-employed farmers a Schedule F. Farm and non-farm sole

¹² See <https://census.gov/datalinkage> for more information.

¹³ Local ordinances collected in Michigan are criminal proceedings within a municipality. For example, a DUI may be charged under local or state ordinance depending on location. For the purposes of this analysis, it not necessary to exclude them or make a distinction since the same criminal record is ultimately created.

¹⁴ In the online appendix, we describe the types of records and years of coverage in more detail. All appendices are available at the end of this article as it appears in JPAM online. Go to the publisher's website and use the search engine to locate the article at <https://onlinelibrary.wiley.com>.

proprietors, independent contractors, self-employed individuals, and partnerships are required to report net profits subject to self-employment taxes using a Schedule SE.¹⁵ Sole proprietorship is the most common form of reported self-employment; 17 percent of households that filed Form 1040s also filed Schedule C forms in 2016 (Internal Revenue Service, 2016a, 2016d).

The vast majority of self-employed individuals that we can identify from Schedule C, F, or SE tax forms (2014 through 2018 tax years) are non-farm sole proprietors filing a Schedule C (93 percent). Moreover, there is considerable overlap among people filing self-employment taxes (Schedule SE), with 93 percent identified as sole proprietors filing a Schedule C. Farm sole proprietors constitute only 4 percent of self-employed individuals identified from Form 1040 filers and 37 percent of these farmers also file a Schedule C.

We are unable to identify other forms of self-employment, such as partnerships or corporations, whose owners are required to file business tax forms.^{16,17} Thus, we focus on Schedule C filing as our measure of small business ownership, which captures all non-farm sole proprietors and independent contractors. For this set of small businesses, we can identify the business owner, the self-employment income, the business revenue, and the firm's industry.

Form 1040 and Schedule C are filed at the household level. Joint filing could create an issue of either double counting self-employed persons or misidentifying the self-employed individual, which is of particular concern given gender differences in identifying as the primary filer on the Form 1040 and differences in the likelihood of joint filing that may vary by whether a filer has a criminal history.¹⁸ We are able to identify the business owner as the self-employed person by linking the Census Bureau Business Register to the set of Schedule C filers. We assign the primary filer as the business owner for the small subset of Schedule C tax filers where business information is not available.

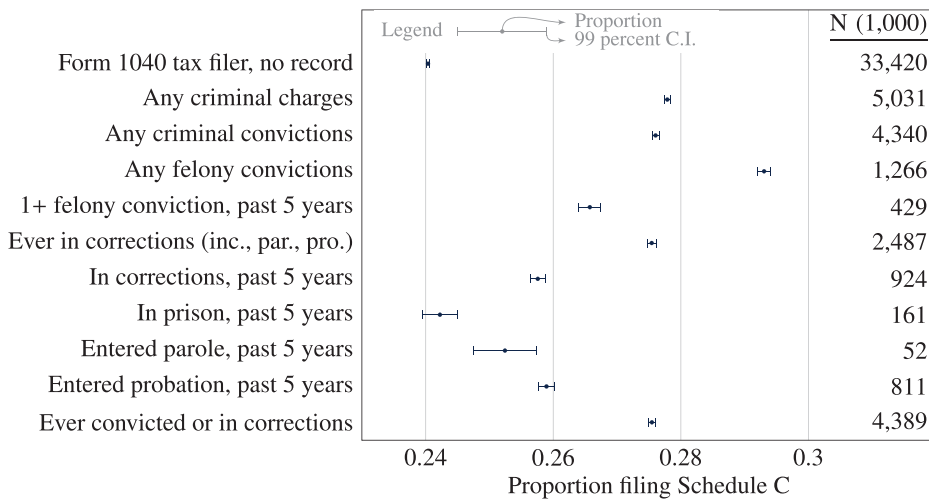
We also measure employer-based employment using the universe of IRS W-2 information returns filed in the 2013 through 2018 tax years. The employer who filed the W-2 form can be linked to the Business Register, and thus employees can be linked to sectors. We use these links to measure common sectors of employment for the justice-involved population, their job experience, and the industries in which they have the highest cumulative employer-based earnings before they start businesses.

¹⁵ In 2016, there were 1,750,996 farm and 25,063,932 non-farm sole-proprietor returns (Internal Revenue Service, 2016d).

¹⁶ Specifically, we do not observe partnerships filing a Schedule K-1 (Form 1065) or Schedule E (Form 1040); corporations filing Form 1120 and either a Form 941, 943, or 940 for tax withholding; S-corporations filing a Form 1120-S and Schedule K-1; and some limited liability companies (LLCs). The IRS treats single-member LLCs as sole-proprietors (observed) and multi-member LLCs as partnerships (not observed). LLCs can also opt to be treated as corporations, in which case they are not observed. Independent contractors file a Schedule C and are observed.

¹⁷ In 2016, there were 3,763,117 partnerships with 28,163,819 partners (Internal Revenue Service, 2016b), 4,592,042 returns for S-corporations, and a total of 6,188,676 corporations (including S-corporations) (Internal Revenue Service, 2016c). Independent contractors and self-employed people who receive a Form 1099-MISC report income and expenses on a Schedule C and file self-employment taxes using a Schedule SE if net profits are over \$400.

¹⁸ Only legally married individuals may jointly file IRS income taxes on Form 1040, although they may choose to file individually.



Source: Calculations are based on IRS 1040 tax forms between 2014 and 2018 tax years and criminal justice involvement as measured in CJARS, vintage 2020.

Notes: Plots show estimated proportions and 99 percent confidence intervals. Estimates and sample sizes have been rounded to preserve confidentiality. Criminal histories are measured as of April 3, 2018. The sample consists of all individuals observed filing Form 1040 at least once between 2014 and 2018 along with an observed Schedule C or W-2, indicating employment beyond filing, and not incarcerated for three or more of the five years, indicating an ability to be in the formal labor market. All results were approved for release by the U.S. Census Bureau, authorization number CBDRB-FY21-ERD002-005 and CBDRB-FY22-ERD002-003.

Figure 1. Proportion of Form 1040 Filers Who Filed a Schedule C, Tax Years 2014–2018, by Type of Criminal History.
[Color figure can be viewed at wileyonlinelibrary.com]

QUANTIFYING THE SCOPE OF SELF-EMPLOYMENT

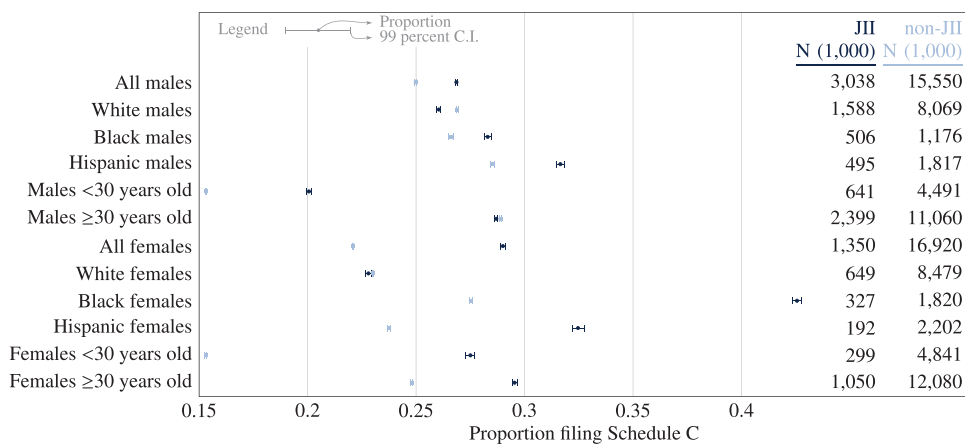
Self-Employment Rates by Criminal History

We examine the Schedule C filing rates of people with varying criminal histories in Figure 1. As a baseline, we consider all individuals who filed at least one Form 1040 between the 2014 and 2018 tax years in one of the five CJARS states and was employed in one of those years, as evidenced by at least one W-2 form filing or Schedule C filing.¹⁹ Given that recent criminal justice involvement may lead to incapacitation, we exclude individuals who are incarcerated in three or more years of the study period to eliminate mechanical relationships between labor supply and incarceration.

We first consider people in the baseline population who do not have criminal records in the CJARS data. Of employed people without a record, 24 percent filed a Schedule C at least once between the 2014 and 2018 tax years.²⁰ Individuals with all types of criminal histories have greater Schedule C filing rates than the group without criminal records. In particular, people with any felony criminal convictions have the highest rates of Schedule C filing, consistent with the hypothesis that more

¹⁹ Being observed on a Form 1040 does not necessarily indicate employment, as married couples may file jointly and individuals may report non-labor market income.

²⁰ This varies some by state, with rates at 16.7 percent in Wisconsin and 27.4 percent in Texas. See Appendix Table A1 for our full set of state-specific results.



Source: Calculations are based on IRS 1040 tax forms between 2014–2018 tax years, IRS W-2 information returns 2013–2017 tax years, NAICS codes from the Business Register, residence measured in 2010, and criminal justice involvement measured in CJARS, vintage 2020.

Notes: Estimates and sample sizes have been rounded to preserve confidentiality. The sample consists of individuals in the five CJARS states who are 18+ years of age or older by April 3, 2018. The sample in panel A is all Schedule C filers between 2014 and 2018 tax years with a valid NAICS code and the sample in panel B is all W-2 filers between 2013 and 2017 tax years. Panels C and D restrict to those with any other services NAICS code (81) within Schedule C and W-2 filers, respectively. Self-employed NAICS codes correspond to the most recent highest net revenue industry from Schedule C filings. Employer-based NAICS correspond to the cumulative highest earning industry from W-2 information returns. All results were approved for release by the U.S. Census Bureau, authorization number CBDRB-FY21-ERD002-005.

Figure 2. Proportion of Form 1040 Filers Who Filed a Schedule C, Tax Years 2014–2018, by Demographic Group and by Whether Ever Convicted or in Corrections. [Color figure can be viewed at wileyonlinelibrary.com]

serious criminal records create stronger barriers to formal employment, although it is also possible that varying attitudes and preferences towards self-employment also explain this heterogeneity.²¹ Individuals who were under correctional supervision in the last five years have somewhat lower rates of Schedule C filing than the charge and conviction groups. This may be caused by some combination of incapacitation, volatile employment histories, and conditional release requirements that they establish employer-based employment. This last effect would pull more people into our employed sample, while reducing the propensity for individuals to be self-employed. Overall, these findings suggest self-employment income represents an important path to self-sufficiency for the justice-involved population.

Self-Employment Rates by Demographic Group

Distinct self-employment patterns emerge by demographic subgroup within the justice-involved population, defined as those with a criminal conviction or correctional spell.²² In Figure 2, we examine how their Schedule C filing rates vary by

²¹ At the high end, over one-third of Texans with a felony conviction had self-employment income registered with the IRS between 2014 and 2018 (approximately 200,000 individuals).

²² Note that the relative prevalence of specific forms of contact may vary by demographic group, which should be kept in mind when interpreting the results in this and subsequent sections.

race and ethnicity, sex, and age, and how those rates compare with the non-justice-involved population.^{23,24}

People with criminal justice involvement are substantially more likely to be self-employed than those who do not have criminal histories, with the exceptions of White individuals and older men. Among those exceptions, White women and older men exhibit essentially the same levels of self-employment with or without justice involvement, and White men are only separated by one percentage point.

In the general population, men are more likely to be self-employed than women. But justice involvement flips that relationship overall and for most subgroups. Men without criminal justice involvement are 3 percentage points more likely to file a Schedule C than their female counterparts, while women with criminal records are 2 percentage points more likely to do so than their male counterparts.²⁵

Among all demographic groups, justice involvement is associated with the largest increase in self-employment for Black women. Twenty-eight percent of non-justice-involved Black women file a Schedule C, compared to 43 percent of justice-involved Black women. This increase of 15 percentage points compares with an increase of two percentage points for Black men. Both Hispanic men and women with justice involvement have substantially higher Schedule C filing than their non-justice-involved counterparts. For Hispanic men, a criminal history is associated with a three percentage point increase in self-employment. For Hispanic women, the increase is even larger, at nine percentage points.

Of people without criminal histories, adults who are less than 30 years of age are much less likely to be self-employed than adults 30 years of age or older. Criminal justice involvement is associated to substantially higher Schedule C filing among younger men and women. The increase is particular prominent for younger women; self-employment is 12 percentage points higher among younger justice-involved women than their non-justice-involved peers.

Industry of Employment

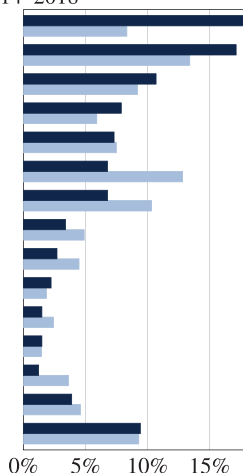
We next explore in which industries, as indicated by two-digit North American Industry Classification System (NAICS) codes, justice-involved individuals work either through self-employment or standard employment arrangements compared to the general population (Figure 3a–b). We consider all individuals in the five CJARS states who are 18 years or older as of April 3, 2018, and link to their employer-based (W-2 information returns) and self-employed (Schedule C filings) work histories. Justice-involved individuals are more likely to be self-employed in construction, other services, and waste management industries and less likely to be in professional, scientific and technical services, or retail trade industries than non-justice-involved self-employed individuals. Justice-involved individuals are also more likely to be employer-employed in construction and waste management industries as well as accommodation and food services and manufacturing; the latter two industries are not prevalent self-employment industries for either those with or without criminal justice records due to the high capital costs of those industries.

²³ State-specific results in tabular format for this exercise are provided in Appendix Table A2.

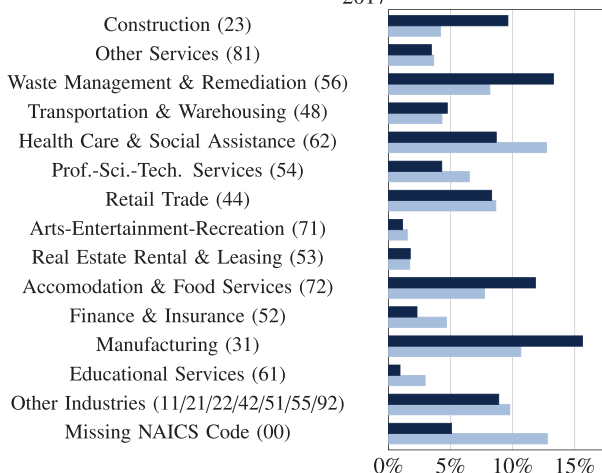
²⁴ Demographics are measured using the Census Numident. For race and ethnicity, we differentiate non-Hispanic White, non-Hispanic Black, and Hispanic individuals.

²⁵ Higher rates of self-employment among low-income women may reflect a desire to have greater control over income targeting in order to remain eligible for the Earned Income Tax Credit (Chetty & Saez, 2013; Saez, 2010).

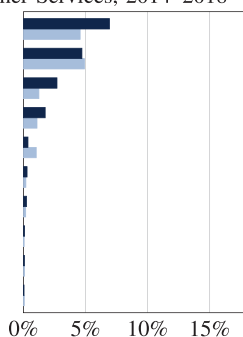
Panel (a): Schedule C Filers, 2014–2018



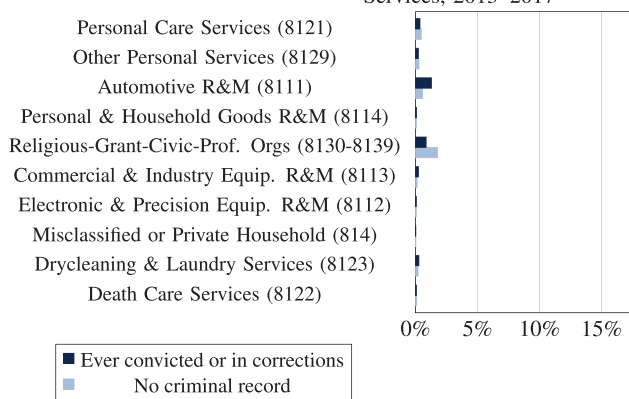
Panel (b): W-2 Recipients, 2013–2017



Panel (c): Schedule C Filers in Other Services, 2014–2018



Panel (d): W-2 Recipients in Other Services, 2013–2017

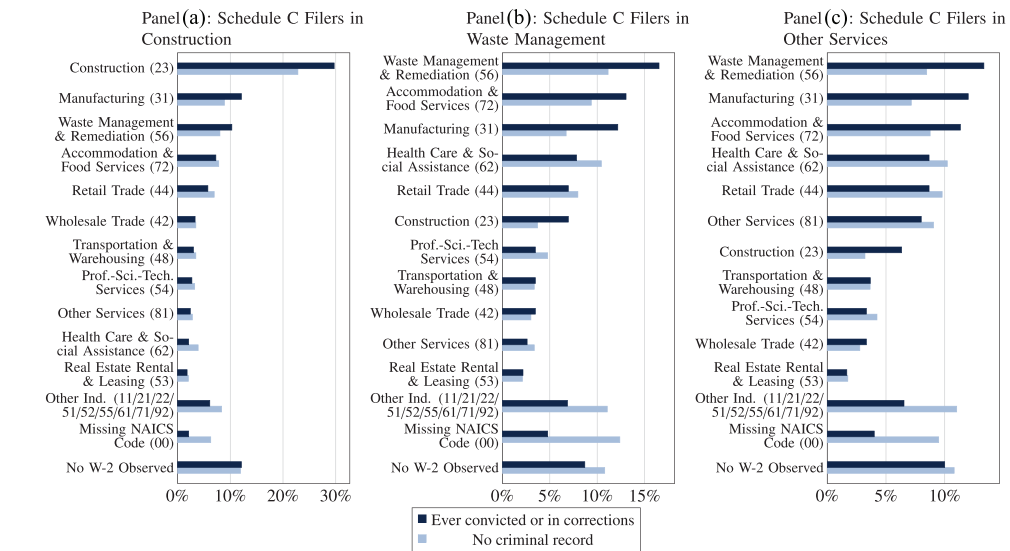


Source: Calculations are based on IRS 1040 tax forms in 2018 tax years, IRS W-2 information returns 2013–2017 tax years, NAICS codes from the Business Register, residence measured in 2010, and criminal justice involvement measured in CJARS, vintage 2020.

Notes: Estimates and sample sizes have been rounded to preserve confidentiality. The sample consists of individuals in the five CJARS states who are 18+ years of age or older by April 3, 2018. Self-employed NAICS codes correspond to the highest net revenue industry from Schedule C filings for newly self-employed individuals in 2018 tax year; that is, individuals not observed filing a Schedule C in 2014 through 2017 tax years. Employer-based NAICS correspond to the cumulative highest earning industry from W-2 information returns in the preceding five years, 2013 to 2017 tax years. All results were approved for release by the U.S. Census Bureau, authorization number CBDRB-FY21-ERD002-005.

Figure 3(a)–(d). Industry of Employment, by Self-Employment or Employer-Based Employment and by Whether Ever Convicted or in Corrections.
[Color figure can be viewed at wileyonlinelibrary.com]

“Other services” are services not related to trade, transportation, utilities, information, financial activities, professional services, education, health, or hospitality. We further disaggregate other services into four-digit NAICS codes, since this industrial category has previously received limited attention in the literature. Figure 3(c) shows that within this sector, individuals with criminal records are most likely



Source: Calculations are based on IRS 1040 tax forms between 2014 and 2018 tax years and criminal justice involvement as measured in CJARS, vintage 2020.

Notes: Plots show estimated proportions and 99 percent confidence intervals. Estimates and sample sizes have been rounded to preserve confidentiality. Criminal histories are measured as of April 3, 2018. The sample consists of all individuals observed filing Form 1040 at least once between 2014 and 2018 along with an observed Schedule C or W-2, indicating employment beyond filing, and not incarcerated for three or more of the five years, indicating an ability to be in the formal labor market. All results were approved for release by the U.S. Census Bureau, authorization number CBDRB-FY21-ERD002-005.

Figure 4(a)–(c). Industry Experience from Employer-Based Work Prior to Self-Employment, by Industry of Subsequent Self-Employment and by Whether Ever Convicted or in Corrections.

[Color figure can be viewed at wileyonlinelibrary.com]

to gain self-employment in automotive repair and maintenance and personal care services relative to self-employed people without criminal records. Personal care services include barber shops, beauty and nail salons, dieting services, and other personal care businesses.

Self-employed people may choose to start businesses in the same sectors in which they have employer-based work experience. We explore this by looking at new Schedule C filers in 2018 and the industry of highest cumulative earnings from W-2 information returns in the preceding five years, 2013 through 2017. Self-employed individuals with criminal records in construction and waste management show a higher degree of in-sector experience than the general population: 30 percent and 17 percent compared to 23 percent and 11 percent, respectively (Figure 4a–b). Interestingly, most justice-involved individuals do not have prior experience in other services (eight percent) before entering self-employment; they are only one percentage point less likely to have within-sector experience than non-justice-involved individuals (Figure 4c). Rather, justice-involved individuals who start businesses in the other services sector have disproportionate experience in waste management, manufacturing, and accommodation and food services, with the latter two industries being largely infeasible for self-employment.

Modeling Self-Employment as a Function of Having a Criminal Record

To understand how criminal histories and demographic characteristics interact to explain high rates of self-employment among people with criminal histories, we model employment and income as a function of criminal justice involvement. Formally, we estimate ordinary least squares (OLS) models following the main specification below:

$$Y_{i,cz}^{2018} = \alpha + \beta 1(CJrecord)_i + \gamma_{sex} + \gamma_{race} + \gamma_{sex \times race} + \gamma_{age} + \gamma_{cz} + \gamma_{educ} + \varepsilon_i, \quad (1)$$

where Y is a measure of employment or income for individual i in 2018. The first outcome of interest is labor supply in the formal sector, which is measured using an indicator for whether a 1040 form is filed along with a W-2 return or Schedule C. We then consider reliance on self-employment among those that work using an indicator for whether a Schedule C is filed and whether a Schedule C is filed without total W-2 wage income of \$1,000 or more. We also consider the intensity of labor market involvement and self-employment using measures of employer-based income and self-employment earnings and business revenue. Specifically, among those formally employed, we measure total earnings (W-2 wages and Schedule C earnings and wages), W-2 wages, Schedule C earnings and wages, share of earnings coming from a Schedule C, and total business revenue.²⁶ The earnings and revenue variables are in \$1,000s and transformed using the inverse hyperbolic sine (IHS) for ease of interpretation and to deal with the presence of outliers and zeros in the earnings data (Burbidge et al., 1988; Pence, 2006). Outcome means for all variables along with means and medians of monetary outcomes in dollars are reported for individuals with and without criminal justice involvement.

The indicator for criminal justice involvement is defined as having any conviction or correctional spell prior to April 3, 2018; β , the parameter of interest, measures the association between having a criminal record and self-employed status or income. Indicator variables are included for gender, race, gender by race, age, commuting zone, and education level.²⁷ We present two specifications. The first includes all individuals in the sample and controls for the information above except educational attainment. The second specification includes indicators for educational attainment but restricts the sample to those who responded to the 2000 decennial census long form or the 2005 through 2018 American Community Survey and were 22 or older at the time of the survey, allowing us to measure educational attainment.

In Table 1(a), we first look at formal labor supply in 2018 as a function of criminal justice involvement among those 18 years and older on April 3, 2018, and residing in one of the CJARS states as of 2010 using a covariate-adjusted linear probability model.²⁸ Individuals with a criminal justice (CJ) record, specifically a conviction or correctional spell, are 13 percentage points (28 percent of the non-CJ group mean) less likely to be engaged in formal economic activity compared to the non-justice

²⁶ Self-employed individuals can receive income from either earnings or paid wages. Since business owners can vary their source of income for tax purposes, we report total received income.

²⁷ Demographics are measured using the Census Numident. Race/ethnicity categories are mutually exclusive: White, Black, other, Asian/Pacific Islander, Hispanic, American Indian/Alaska Native, and missing race. Gender categories include missing, male, and female. A separate indicator is included for each age in years from 18 to 95, and for ages above 95 years. Commuting zone indicators correspond to the geographic location of the individual reported in the 2010 decennial census. Commuting zones that straddle multiple states are split and coded as separate indicators. Education levels include high school/associate's degree and bachelor's/advanced degree.

²⁸ We report the unadjusted means for those with and without a criminal justice record for reference. However, we only use these means (and medians for income measures) to benchmark the magnitude of the estimated coefficients and show the distribution of earnings by population.

Table 1. Modeling self-employment as a function of criminal justice involvement.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
							Excluding those with AGI within +/- \$1,000 of first EITC kink			
Panel A: Employment in 2018	Formally employed in 2018 W-2 or Sch. C	Formally employed in 2018 W-2 or Sch. C	Filed Sch. C in 2018	Filed Sch. C in 2018	Filed only Sch. C in 2018	Filed only Sch. C in 2018	Filed Sch. C in 2018	Filed Sch. C in 2018	Filed only Sch. C in 2018	Filed only Sch. C in 2018
Any conviction or correctional spell	-0.133*** (0.00910)	-0.109*** (0.00846)	0.0181*** (0.00481)	0.0211*** (0.00430)	0.0209*** (0.00614)	0.0195*** (0.00157)	0.0091** (0.00448)	0.0159*** (0.00421)	0.0163*** (0.00135)	0.1063*** (0.00145)
N	41,570,000	9,844,000	19,850,000	4,362,000	19,850,000	4,362,000	19,380,000	4,318,000	19,380,000	4,318,000
Outcome mean for non-CJ individuals	0.482	0.478	0.170	0.188	0.077	0.089	0.168	0.185	0.075	0.087
Outcome mean for CJ individuals	0.453	0.474	0.191	0.199	0.087	0.095	0.180	0.190	0.081	0.090
Percent difference	27.6 percent	22.8 percent	10.6 percent	11.2 percent	27.1 percent	21.9 percent	5.9 percent	8.59 percent	21.7 percent	18.7 percent
Formally employed (Sch. C or W-2) in 2018 sample	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Yearly age indicators										
Gender x race indicators										
State x county indicators										
Educational attainment indicators										
2000 long-form/ACS respondent sample										

Table 1. (Continued).

Panel B: Earnings in 2018									
	IHS total earnings in 2018	Total earnings in 2018	IHS W-2 wages in 2018	IHS W-2 wages in 2018	IHS Sch. C earnings in 2018	IHS Sch. C earnings in 2018	Share of earnings from Sch. C in 2018	Share of earnings from Sch. C in 2018	IHS Sch. C revenue in 2018
Any conviction or correctional spell	-0.290*** (0.0235)	-0.188*** (0.0217)	-0.356*** (0.0211)	-0.250*** (0.0175)	0.0532*** (0.0105)	0.0547*** (0.0101)	0.0245*** (0.00215)	0.0214*** (0.00194)	0.0828*** (0.0139)
N	19,850,000	4,362,000	19,850,000	4,362,000	19,850,000	4,362,000	19,540,000	4,267,000	19,850,000
Outcome mean for non-CJ individuals	4.003	4.143	3.766	3.873	0.346	0.390	0.077	0.087	0.496
Outcome mean for non-CJ individuals, in \$1000s	50.38	57.53	46.22	52.54	4.162	4.992	-	-	9.303
Outcome mean for CJ individuals	3.939	4.024	3.647	3.713	0.3988	0.4169	0.09575	0.09988	0.5952
Outcome mean for CJ individuals, in \$1000s	42.03	45.57	38.33	41.56	3.697	4.008	-	-	11.23
Outcome median for non-CJ individuals	4.225	-	4.17	-	0	-	0	-	0
Outcome median for non-CJ individuals, in \$1000s	34.16	-	32.34	-	0	-	-	-	0
Outcome median for CJ individuals	4.122	-	4.069	-	0	-	0	-	0
Outcome median for CJ individuals, in \$1000s	30.83	-	29.23	-	0	-	-	-	0

Table 1. (Continued).

<i>Panel B: Earnings in 2018</i>	IHS total earnings in 2018	Total earnings in 2018	IHS W-2 wages in 2018	IHS W-2 wages in 2018	IHS Sch. C earnings in 2018	IHS Sch. C earnings in 2018	Share of earnings from Sch. C in 2018	Share of earnings from Sch. C in 2018	IHS Sch. C revenue in 2018	IHS Sch. C revenue in 2018
Formally employed (Sch. C or W-2) in 2018 Sample	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Yearly age indicators	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Gender x race indicators	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
State x county indicators	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Educational attainment indicators		Y		Y		Y		Y		Y
2000 long-form/ACS respondent sample		Y		Y		Y		Y		Y

Source: Calculations are based on IRS 1040 tax forms between 2014 and 2018 tax years and criminal justice involvement as measured in CJARS, vintage 2020. Models using sample data are based on further links to 2005–2018 American Community Survey and 2000 decennial census long form data.

Notes: Estimates and sample sizes have been rounded to preserve confidentiality. The sample consists of individuals observed in the five states in 2010 that are 18 or older as of April 3, 2018. Formal employment is defined as individuals that file a Form 1040 with either a Schedule C or a W-2 information return filed in the 2018 tax year. Only Schedule C employment is defined as having filed a Schedule C in 2018 and not being observed with a W-2 information return of \$1,000 or more in 2018. The sample is limited to individuals that filed a Form 1040 and are either self-employed or employer-based in 2018 as measured by having a Schedule C or W-2 information return filed in panel A columns 3–10 and panel B columns 1–10. Panel A columns 7–10 repeat columns 3–6 excluding individuals with Adjusted Gross Income within \$1,000 of the first EITC kink in 2018; the threshold is \$6,780, \$10,180, and \$14,570 for households with zero, one and two or more dependents, respectively. Criminal justice involvement is measured as any felony conviction or correctional episode (probation, incarceration, or parole) as of April 3, 2018. Educational attainment is measured among 2005–2018 American Community Survey (ACS) and 2000 decennial census long form respondents that were 22 or older at the time of the survey (see Census Bureau (2019)). The provided person weights are used in specifications restricted to the survey sample (columns 2, 4, 6, 8, and 10). All specifications are estimated using a Ordinary Least Squares (OLS) and include indicators for each age in years and commuting zone of residence as of 2010. Standard errors are clustered by commuting zone of residence in 2010. Unadjusted means and medians for those with and without any conviction or correctional spell are shown in the panels. All results were approved for release by the U.S. Census Bureau, authorization numbers CBDRB-FY21-ERD002-024 and CBDRB-FY22-ERD002-003. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

involved population (column 1). This relationship is surprisingly stable although it shrinks slightly after accounting for educational attainment in column 2 of panel A. In columns 3 through 6, we look at the likelihood of being self-employed among those formally employed in 2018, as measured by Form 1040 filing along with a Schedule C or W-2 return. Columns 3 and 4 document that individuals with a criminal record are two percentage points, or 11 percent, more likely to be self-employed than non-justice involved individuals. Moreover, they are 22 percent more likely to be reliant on self-employment, as measured by filing a Schedule C and not also having a W-2 with \$1,000 or more (column 6). Finally, we find that this is not driven primarily by those maximizing the Earned Income Tax Credit (EITC) and their net tax refunds, as seen in columns 7 through 10, which exclude those within \$1,000 of the first EITC kink (Tax Policy Center, 2021).²⁹

These results are mirrored when looking at amounts of income by source in panel B, where all dollar variables are in \$1,000s of dollars and transformed using the inverse hyperbolic sine function. Individuals with a criminal record have 29 percent lower total earnings (W-2 wages and Schedule C earnings and wages), which predictably shrinks to 19 percent once accounting for educational attainment (columns 1 and 2). In columns 3 and 4, we see that the decrease in overall earnings is due to significantly lower W-2 earnings, with individuals receiving 25 percent lower employer-based wages when accounting for educational attainment. This is in part made up by higher Schedule C earnings on average. Columns 5 and 6 report a similar 5.3 percent and 5.5 percent increase in self-employment income, respectively. Ultimately, this represents earning two percent more of total earnings through self-employment for those with criminal records. Finally, since it is common to withhold self-employment income to reinvest in the company or for tax purposes and some individuals may be self-employed more as a side project, we measure the gross revenue reported by sole proprietors on their Schedule C forms in columns 9 and 10. Those with criminal records have businesses that are 8.6 percent larger in terms of total revenue, suggesting that they are more likely to be owners of substantial businesses that individuals are relying upon than non-justice-involved individuals.

Several factors may explain these documented patterns. Self-employment may be a strategic response to discrimination in the formal labor market by those that have criminal records. It may also be possible that divergent preferences towards self-determination (i.e., being one's own boss) explain the disproportionate representation of the justice-involved population in self-employment. Finally, occupational licensing restrictions may encourage justice-involved individuals into professions that are particularly compatible with self-employment by limiting access to industries in health and education, for example. Differentiating these potential mechanisms is an important area for future research.

RECENT INTERACTION BETWEEN POLICIES TO SUPPORT SELF-EMPLOYMENT IN THE U.S. AND CRIMINAL HISTORIES

COVID-19 and the Paycheck Protection Program

In December 2019, a novel coronavirus began spreading rapidly, with recorded cases in 19 countries by the end of January 2020 (World Health Organization, 2020). The World Health Organization declared the 2019 Novel Coronavirus

²⁹ The estimates shrink slightly when excluding those around the EITC kink with notable differences by gender (Appendix Table A3); the male and female estimates reduce to between 75 and 94 percent and 49 to 52 percent of the original coefficients, respectively.

Disease (COVID-19) a pandemic on March 11, 2020, and the United States followed suit, declaring a national emergency two days later.

The Paycheck Protection Program (PPP) was passed by Congress as a part of the Coronavirus Aid, Relief, and Economic Security (CARES) Act on March 27, 2020, to offer assistance to small businesses facing economic hardship in the midst of COVID-19.³⁰ Initially, Congress allocated \$349 billion, adding \$310 billion a month later and two more allocations of \$284 and \$7 billion in December 2020 and March 2021, respectively. The loans, administered through the Small Business Administration (SBA), could be forgiven if at least 60 percent of loan funds were used for payroll and businesses did not decrease their workforce size or wages. These loans also offered one percent interest rates, a two- or five-year minimum maturation period, deferred payments for six months, no collateral or personal guarantees, and no fees charged to the business. Small businesses were eligible to apply for funding, including sole proprietors, independent contractors, self-employed persons, accommodation and food service businesses (NAICS codes beginning with 72) with more than one physical location and fewer than 500 employees per location, non-profit organizations, veterans organizations, and tribal businesses with fewer than 500 employees or the industry size standard if more than 500. In our five states, sole proprietors received an average of \$28,650 in potentially forgivable loans, if spent on approved expenditures such as rent and payroll, and reported having five employees on average.³¹

Initially, the SBA implemented PPP eligibility restrictions for those with recent criminal histories to determine character, ability to repay loans, and potential for fraud. Specifically, the original application denied businesses with an owner of at least 20 percent or more equity who was currently in prison, on parole, on probation, had a pending charge, or was convicted of a felony within the last five years; these restrictions were later reduced in scope. Applicants report criminal history on the application form and give permission for criminal background checks by the Federal Bureau of Investigation (FBI) to verify the application information. Notably, lying on a loan application form is a felony offense punishable by up to \$1 million in fines and 30 years in prison (18 U.S.C. 1014).

Fraud is a legitimate concern when the SBA and banks make lending decisions, and there is already some evidence of fraud in the PPP program (Griffin et al., 2021). In choosing to disqualify applicants with criminal histories, the effectiveness of criminal background checks in reducing potential fraud must be weighed against the costs of reducing the successful economic reintegration of people with criminal records. In this section, we document how many self-employed people with criminal records were potentially disqualified by the initial SBA restrictions. We are not yet able to link CJARS records with PPP loan data. In the future, those linkages will allow a more comprehensive comparison of the benefits and costs of criminal disqualifications.

Measuring PPP Disqualifying Criminal Justice Events Among Recent Small Business Owners

We identify recently self-employed individuals or small businesses using Schedule C filing and do not observe other non-sole proprietor businesses (e.g., partnerships or

³⁰ The CARES act also included the Pandemic Unemployment Assistance (PUA), which extended benefits to self-employed individuals and independent contractors.

³¹ Numbers are from the SBA PPP Loan Level Data provided by the U.S. Department of Treasury at <https://home.treasury.gov/policy-issues/cares-act/assistance-for-small-businesses/sba-paycheck-protection-program-loan-level-data>.

S-corporations). This omission could lead to an overestimate of the rate of observed disqualifying events among all small businesses in the U.S. However, of the PPP loans under \$150,000 granted in the five states used in this analysis, 51 percent were for sole-proprietors/single-member LLCs, 23 percent for corporations, 11 percent for S-corporations, eight percent for independent contractors/self-employed individuals, and two percent for partnerships.³² We are also unable to isolate small businesses in the analysis. Some individuals may claim self-employment income associated with businesses that are ineligible for PPP because they have more than 500 employees. Finally, we note that tax filing status in any given year between 2014 and 2018 tax years is an imperfect proxy for *currently* being a small business owner; thus, we only hope to shed light on the percent of recent small business owners that are observed with various PPP disqualifying criteria.

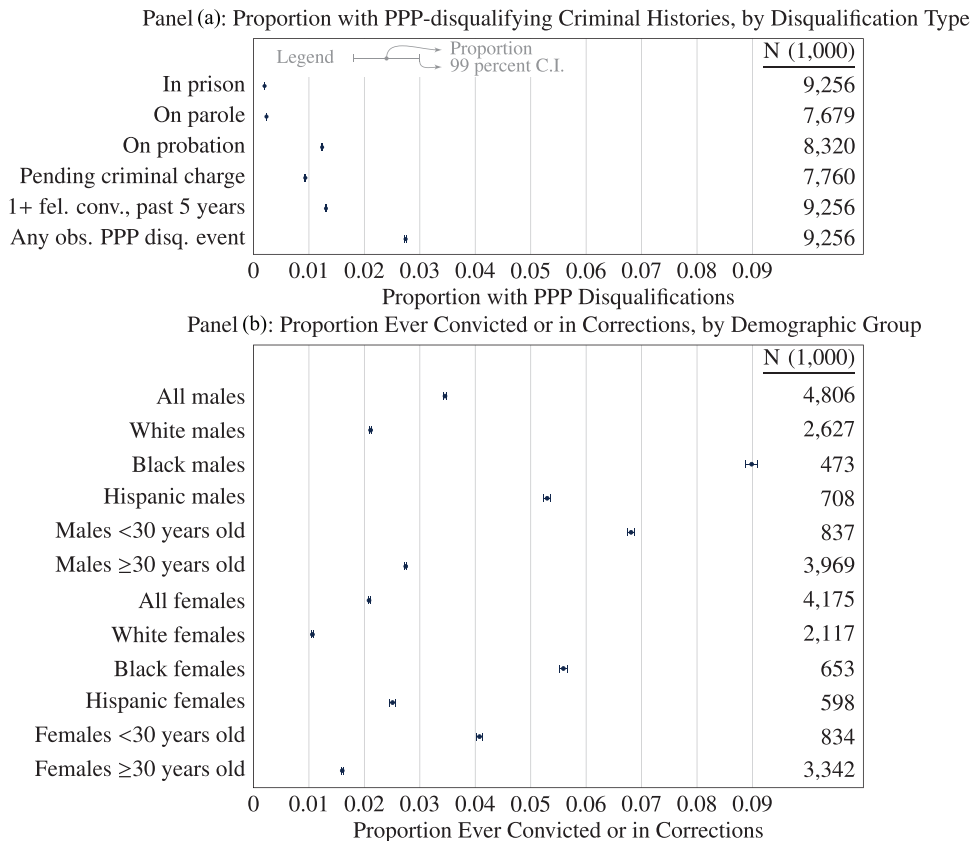
Rates of PPP Disqualifying Criminal Justice Events Among Recent Small Business Owners

We estimate that more than 254,000 recently self-employed business owners in the five CJARS states would initially not be eligible for PPP loans due to one or more observable PPP eligibility disqualifying events resulting from prior contact with their filing state's criminal justice system (Appendix Table A4).³³ Figure 5(a) shows estimated disqualification rates across the pooled states and shows how disqualification varies by type of criminal record. Across the pooled states, 2.7 percent of recent Schedule C filers had a disqualifying event. In states where CJARS has the most complete procedural coverage, observed ineligibility rates were the highest; 5.1 percent and 2.8 percent would be ineligible in Michigan and Texas, respectively (Appendix Table A4). The most common reason for exclusion from PPP eligibility in Michigan was having a pending criminal charge; in Texas, the most common reason was being on probation.

All states considered in this analysis have coverage of the criminal court system and the correctional population, but the historical and jurisdictional coverage varies; pending charges, misdemeanors, parole, and probation events are not always included in the data limiting the observed disqualifying events. The states with more limited coverage exhibit observed ineligibility rates in the range of 1.4 to 1.9 percent. For example, in North Carolina, where historical criminal convictions currently can be observed only for those who were under correctional supervision, we measure an intermediate value at 1.6 percent observed ineligible (Appendix Table A4). Bushway et al. (2021) largely confirms these magnitudes using commercial administrative records without limiting their definition of small business ownership to Schedule C filers, although they do not have the universe of businesses and are limited to measuring criminal justice contact with felony convictions. The disqualifying statuses were not mutually exclusive, with roughly 30 percent of observed ineligible individuals having more than one disqualification. Thus, elimination of any single exclusion criteria would not change the overall ineligibility rate in the population substantially. However, Bushway et al. (2021) provide estimates on how significant changes to PPP restrictions reduced the number of excluded businesses.

³² Percentages are calculated from SBA PPP Loan Level Data provided by the U.S. Department of the Treasury (<https://home.treasury.gov/policy-issues/cares-act/assistance-for-small-businesses/sba-paycheck-protection-program-loan-level-data>).

³³ We note that this estimate is based on tax filings between the 2014 and 2018 tax years and criminal justice involvement as of April 3, 2018 as discussed in Sections 3 and 5.2. All state-specific estimates in the next two paragraphs come from Appendix Table A4.



Source: Calculations are based on IRS 1040 tax forms between 2014 and 2018 tax years and criminal justice involvement as measured in CJARS, vintage 2020.

Notes: Plots show estimated proportions and 99 percent confidence intervals. Estimates and sample sizes have been rounded to preserve confidentiality. Criminal histories are measured as of April 3, 2018. The sample consists of all individuals observed filing Form 1040 at least once between 2014 and 2018 along with an observed Schedule C or W-2, indicating employment beyond filing, and not incarcerated for three or more of the five years, indicating an ability to be in the formal labor market. All results were approved for release by the U.S. Census Bureau, authorization number CBDRB-FY21-ERD002-005.

Figure 5(a)–(b). Proportion of Form 1040 Schedule C Filers with PPP-Disqualifying Criminal Histories, Tax Years 2014–2018.

[Color figure can be viewed at wileyonlinelibrary.com]

The incidence of observable PPP disqualifying events varies by demographic group (Figure 5b). Overall, self-employed men are more likely to have a disqualification-eligible criminal history than self-employed women (3.5 percent versus 2.1 percent). This reflects the disproportionate contact men have with the criminal justice system, but also the higher rate of self-employment women have conditional on having a criminal history.

Self-employed Black men are the most likely demographic group to have a disqualification-eligible criminal history. Nine percent of self-employed Black men have a conviction or have been in corrections, more than four times the rate of

self-employed White men (2.1 percent).³⁴ Among self-employed Hispanic men, 5.3 percent have a conviction or have been in corrections. Due to their increased criminal justice contact and their propensity to become self-employed conditional on contact, 5.6 percent of self-employed Black women have a disqualification-eligible criminal history. This places Black women at higher risk of ineligibility than White or Hispanic men.

Implications of Financial Assistance Barriers

Yelp Economic Average (2020) documents that 25 to 57 percent of retail and food services, a sector hit particularly hard, and 6 to 10 percent of home and mechanic services were permanently closed due to the pandemic. Bartik, Bertrand, Cullen, Glaeser, Luca, Stanton, and Sunderam (2020) suggest that PPP support was an important lifeline, increasing a business's expected survival rate by an estimated 14 to 30 percentage points. Business owners with criminal histories initially could not access this support. While access was broadened three months later, many businesses may have already closed or suffered substantial losses. By March 2020 there was an estimated early closure rate of two percent (Bartik, Bertrand, Cullen, Glaeser, Luca, & Stanton, 2020), which was rising as businesses transitioned from temporary to permanent shutdowns.

These business closures are likely to have disproportionately affected owners from minority groups (Fairlie, 2020) due to a lack of lending services in minority communities (Blanchflower et al., 2003; Fairlie, 1999) and higher rates of criminal histories among sole proprietors. To the extent that closures are permanent and related to PPP access, the initial criminal restrictions may have resulted in reductions in minority representation among small business owners and removed an important source of income for those with criminal records.

CONCLUSION

An increasing number of people in the U.S. have a criminal record, especially within minority communities. These individuals face well-documented labor market discrimination. A potential alternative is self-employment and entrepreneurship. However, due to a multitude of data constraints, the prevalence of this form of activity among those with criminal records was previously unknown. Using novel data linkages between CJARS and IRS tax records, we document the extent that justice-involved individuals engage in self-employment, finding that 28 percent of individuals with any conviction or correctional spell are self-employed. Moreover, individuals with criminal records are 22 percent more likely than their non-justice-involved counterparts to rely primarily on self-employment. Given these higher rates of self-employment, research that relies on Unemployment Insurance records or W-2 information returns to study labor market outcomes for individuals with criminal records will systematically miss an important source of income.

While we cannot determine whether labor market discrimination, employment preferences, or other labor market features like occupational licensing restrictions explain the disproportionate reliance of the justice-involved population on self-employment, the high prevalence rates (over one in four justice-involved individuals) have important policy implications. First, reentry programs may benefit from

³⁴ In Michigan and Texas, 7.7 to 19.2 percent of Black men with reported self-employment income had an observed disqualifying event, representing over 34,000 minority business owners. See Appendix Table A5.

greater targeting of job skills that can be deployed through self-employment. Similarly, training returning citizens on management and organizational practices (such as tax filing requirements) may help improve the success of their entrepreneurial activities. Finally, questions about self-employment should be incorporated into risk tools that assess self-sufficiency, flight risk, and recidivism risk.

Our findings also highlight the role of institutionalized barriers in financial access, particularly with respect to the Payroll Protection Program. While the SBA's original criminal history-based disqualifications were not relevant for the vast majority of small business owners, we estimate that 2.7 percent of recent sole proprietors had criminal histories such that they would have been initially ineligible for PPP support. Moreover, minority business owners were observed with disqualifying criminal justice events at significantly higher rates than their White counterparts. Given the role of PPP funding in improving the likelihood of remaining open (Bartik, Bertrand, Cullen, Glaeser, Luca, Stanton, & Sunderam, 2020) and the importance of access to credit more generally, criminal disqualifications in small business lending may jeopardize an important income source for those with criminal records and reduced minority representation among small business owners.

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ACKNOWLEDGMENTS

We thank Charles Brown, Shawn Bushway, Jocelyn Fontaine, Katie Genadek, Dmitri Koustas, Carla Medalia, Peter Mueser, Emily Nix, Kevin Schnepel, Amy Solomon, and Melvin Stephens for their thoughtful comments and suggestions. We also thank the editor, John MacDonald, and two anonymous referees for their feedback, which has helped improve the paper. Financial support for this project was provided by Arnold Ventures. Any views expressed are those of the authors and not those of the U.S. Census Bureau. Results were approved for release by the Census Bureau's Disclosure Review Board, authorization numbers CBDRB-FY21-ERD002-005, CBDRB-FY21-ERD002-024 and CBDRB-FY22-ERD002-003 (approved 10/29/2020, 8/2/2021 and 2/15/2022).

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